



RECEIVED
UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/659,844	09/11/2000	Robert M. Ames	82,631	5614
7590	04/28/2004		EXAMINER	
Office of Counsel Code 004 Naval Surface Warfare Center Carderock Div Hqtrs - David Taylor Model Basin 9500 MacArthur Boulevard West Bethesda, MD 20817-5700			BARNES, CRYSTAL J	
			ART UNIT	PAPER NUMBER
			2121	5
			DATE MAILED: 04/28/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

PL1

Office Action Summary	Application No.	Applicant(s)
	09/659,844	AMES ET AL.
	Examiner	Art Unit
	Crystal J. Barnes	2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 11 September 2000.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-7 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 11 September 2000 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

1. The following is a Supplemental Office Action in response to a telephonic inquiry received on 30 March 2004. Claims 1-7 are pending in this application.

Priority

2. Applicant's claim for domestic priority under 35 U.S.C. 120 is acknowledged.

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the non-provisional application on which domestic priority under 35 U.S.C. 120 is claimed by specifying the application number and filing date.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 11 September 2000 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the

information disclosure statement is being considered by the examiner. An initialed copy of the Form 1449 was enclosed with the initial Office Action.

Drawings

5. This application lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes only. When the application is allowed, applicant will be required to submit new formal drawings.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: reference character "0" or "O" in figure 18 does not appear in the specification. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "46" in figure 17 has been used to designate both three-dimensional solids or volumes on page 13 lines 17-19 and connector of type

surface on page 13 lines 19-20. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

8. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. In particular, the claims are directed to a "method" of evaluating and designing structural products. No "system" has been claimed or disclosed.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claim 1 recites a method for "evaluation and design" of a structural product formed in accordance with geometrical modeling. However, no evaluation or design

occurs in the recited steps of the method. It is unclear as to how the steps of establishing multiple topological views, associating properties and analysis with the topological views, and mapping topological views to a common and unique base geometry constitute a method for "evaluating" and "designing" structural products.

12. *Claim 1 recites a method for evaluation and design of a "structural product formed" in accordance with geometrical modeling. It is not clear whether the structural product is an actually formed product (i.e., a manufactured physical product) or is a conceptual geometrical model. If it is the latter, it is not understood how a structural product is "formed" by mere geometrical modeling.*

13. *Claim 1, line 6, "common and unique base geometry" is contradictory and indefinite. Is the base geometry common or unique? It cannot be both common and unique.*

14. *Regarding claim 3, the phrase "such" on line 2 renders the claim indefinite because it is unclear what limitations, following the phrase, are part of the claimed invention. See MPEP § 2173.05(d).*

15. Regarding claim 3, the terms "points on curves, edges on surfaces, faces on solids" on lines 2-3 renders the claim indefinite because it is unclear whether the limitations are all or alternatively part of the claimed invention.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,581,672 to Letcher, Jr.

As per claim 1, the reference Letcher, Jr. discloses in combination with geometrical modeling of physical bodies, a method for evaluation and design of a structural product formed in accordance with said geometrical modeling, including the steps of: establishing multiple topological views (see column 8 lines 16-20, "appropriate views") representing said structural product (see columns 4-5 lines 44-30, "entities") through use of inner and outer boundaries (see column 8 lines

20-23, "parameter space"); associating properties (see column 4 lines 14-19, 26-29, "dependencies, properties") and analysis with said topological views ("appropriate views"); and mapping said multiple topological views ("appropriate views") to a common and unique base geometry (see column 13 lines 9-14, "absolute geometrical information").

As per claim 2, the Letcher, Jr. reference discloses said topological views ("appropriate views") overlap within a parametric domain (see column 5 lines 14-19, "parametric coordinate system") of said base geometry ("absolute geometrical information") defining physical space of said structural product ("entities").

As per claim 3, the Letcher, Jr. reference discloses a method for connecting boundary elements of said topological views ("appropriate views"), where such boundary elements include points (see column 4 lines 47-52, "point") on curves (see column 4 lines 54-59, "curve"), edges on surfaces (see columns 4-5 lines 60-1, "surface"), faces on solids (see column 5 lines 14-19, "solid").

As per claim 4, the Letcher, Jr. reference discloses said step of connecting the boundary elements (see column 4 lines 30-32, "object dependency") is performed using connection objects mapping parametric domain space ("parametric coordinate system") of two or more of the boundary elements (object dependency") to common parameters, of which Cartesian (see column 4 lines 41-43,

"coordinates x, y, z") is one, through multidimensional spline functions (see column 4 lines 58-59, "Spline Curves"; column 5 lines 9-12, "Spline Snakes").

As per claim 5, the Letcher, Jr. reference discloses said step of connecting the boundary elements ("object dependency") is performed using connection objects (see column 4 lines 5-6, "object") mapping two or more parametric points (see column 6 lines 45-53, "point") on the respective boundary elements ("object dependency") to a common Cartesian location in space ("parametric coordinate system").

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,581,672 to Letcher, Jr. in view of USPN 5,859,786 to Klein.

As per claim 6, the Letcher, Jr. reference discloses said step of connecting the boundary elements ("object dependency") is performed using connection

objects (see column 4 lines 5-6, "object") mapping parametric edge elements (see column 7 lines 26-28, "edges") of a topological view ("appropriate views") of type face to common parameters ("parametric coordinate system") of which Cartesian location ("coordinates x, y, z") is one, through multidimensional spline functions (see column 4 lines 58-59, "Spline Curves"; column 5 lines 9-12, "Spline Snakes").

As per claim 7, the Letcher, Jr. reference discloses said step of connecting the boundary elements ("object dependency") is performed using connection objects (see column 4 lines 5-6, "object") mapping parametric edge elements (see column 7 lines 26-28, "edges") of a topological view ("appropriate views") of type volume to common parameters ("parametric coordinate system") of which Cartesian location ("coordinates x, y, z") is one, through multidimensional spline functions (see column 4 lines 58-59, "Spline Curves"; column 5 lines 9-12, "Spline Snakes").

The Letcher, Jr. reference does not expressly disclose a topological view of type face or a topological view of type volume.

The Klein reference discloses

(see column 3 lines 29-37, "volume level ... basic level for the description of elementary structures ... topology level ... representation of overall geometry ... generic area level ... generic edge level ...")

(see column 8 lines 58-62, "... central representation element ... geometry solid or body ... integrated representation of the geometric, i.e., volume-, area-, line-, point-, and topology-related geometric information ...")

(see columns 9-10 lines 31-21, "Geometric shapes and relationships are described at three levels ... volume level ... generic areas and edges level ... topology level ...")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the system for computer-aided geometric design taught by the Letcher, Jr. reference with the process for computer-aided geometry modeling taught by the Klein reference to provide an expressive and declarative description of geometric features and relationships in computer-aided geometry modeling of workpieces.

One of ordinary skill in the art would have been motivated to provide an integrated, declarative, logic-based modeling of features and geometries which combines in itself volume-, area-, line-, point-, and topology-related geometric information and connects it with non-geometric information.

Conclusion

20. No claims are allowed.

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to in general:

USPN 5,488,692 to Karasick et al.

USPN 6,392,645 B1 to Han et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes whose telephone number is 703.306.5448. The examiner can normally be reached on Monday-Friday alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 703.308.3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Anthony Knight
Supervisory Patent Examiner
Group 3600

cjb
26 April 2004